

LISTING OF CLAIMS:

Please replace all prior listings of claims as follows:

1. (Currently Amended) A liquid pipetting apparatus for dispensing a minute amount of liquid comprising:

at least one conduit member for holding the liquid therein and having a dispensing end;

an actuator associated with the at least one conduit member, and

a voltage controller programmed ~~applying mechanism configured~~ to move the at least one conduit member and dispense the liquid from a dispensing end thereof when the at least one conduit member is moved in a dispensing direction by voltage applied to the actuator, temporarily stopped, and then moved in a direction opposite the dispensing direction of the liquid by a decrease in the voltage applied to the actuator, wherein dispensing substantially occurs while concurrently moving the conduit member in the direction opposite the dispensing direction.

2-27. (Cancelled)

28. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, further including a vertical rod coupled to the actuator, wherein the at least one conduit is coupled to the vertical rod and moves along a vertical axis of the rod to dispense the liquid in a downward direction ~~dispensing direction of the liquid is a vertical and downward direction.~~

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1 32, wherein the voltage controller is programmed to accelerate an acceleration of the at least one conduit member in the dispensing direction at a first magnitude and in the direction opposite to the dispensing direction at a second magnitude is different in magnitude at the times that the at least one conduit member moves in the dispensing direction of the liquid versus when the at least one conduit member moves in the direction opposite to the dispensing direction of the liquid.

35. (Currently Amended) A liquid pipetting apparatus as claimed in claim 34, wherein the first magnitude of acceleration is less than the second magnitude of acceleration a larger acceleration is caused in the at least one conduit member at the time the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid than at the time the at least one conduit member is moved in the dispensing direction of the liquid.

36. (Cancelled)

37. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the voltage controller is programmed to move the at least one conduit member ~~after being moved~~ in the direction opposite to the dispensing direction of the liquid, and ~~then~~ the at least one conduit member dispenses the liquid held within the at least one conduit member from one end thereof.

38. (Currently Amended) A liquid pipetting apparatus as claimed in claim 37, wherein after being moved in the direction opposite to the dispensing direction of the liquid, the voltage controller is programmed to move the at least one conduit member ~~moves~~ to a specific position in order to dispense the liquid held within the at least one conduit member from one end thereof.

39. (Currently Amended) A liquid pipetting apparatus as claimed in claim 37, wherein the voltage controller is programmed such that the at least one conduit member repeats the movement to the dispensing direction of the liquid and the movement in the direction opposite to the dispensing direction of the liquid.

40. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the liquid is held in the at least one conduit member before the voltage controller moves the at least one conduit member ~~is moved~~ in the direction opposite to the dispensing direction of the liquid.

41. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, further comprising a washing means capable of washing the at least one conduit member.

42. (Cancelled)

43. (Cancelled)

44. (Previously Presented) A liquid pipetting apparatus as claimed in claim 41, wherein the washing means contains a pump for sending to the at least one conduit member a cleaning solution capable of washing the at least one conduit member.

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member for holding the liquid has an inside top surface and the top surface of the at least one conduit member and the liquid define an air space liquid is touched to further comprising an air space touching the liquid at a side opposite to the dispensing direction in the inside of the at least one conduit member.

49. (Cancelled)

50. (Cancelled)

51. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member holds the liquid in the inside thereof and contains a dispensing vent at a distal end thereof to dispense the liquid held in the at least one conduit member through the dispensing end ~~at its one end.~~

52. (Currently Amended) A liquid pipetting apparatus as claimed in claim 51, wherein an inner portion of the at least one conduit member ~~liquid holding member~~ has a taper shape, of which the cross-sectional area becomes smaller as the inner portion approaches the dispensing vent.

53. (Cancelled)

54. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the actuator includes a piezoelectric element.

55. (Cancelled)

56. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member is connected to the actuator detachably.

57. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member comprises a plurality of conduit members.

58. (Cancelled)

59. (Cancelled)

60. (Cancelled)

61. (Currently Amended) A liquid dispensing method for dispensing a minute amount of liquid from one end of at least one conduit member for holding the liquid, comprising:

~~a step of holding the liquid in the at least one conduit member; and~~

~~a step of dispensing the liquid held in the at least one conduit member~~
from one end thereof, when the conduit member is moved in a direction opposite to a
dispensing direction of the liquid by a decrease in voltage applied to an actuator
associated with the at least one conduit member.

62. (Cancelled)

63. (Currently Amended) A liquid dispensing method as claimed in claim
61, further including stopping the conduit member between moving the conduit member
in a dispensing direction of the liquid and moving the conduit member in the direction
opposite the dispensing direction of the liquid ~~wherein the at least one conduit member is~~
~~moved in the direction opposite to the dispensing direction of the liquid, after the stop of~~
~~movement.~~

64. (Currently Amended) A liquid dispensing method as claimed in claim
61, further including moving the at least one conduit member in the dispensing direction
of the liquid and wherein after being moved in the dispensing direction of the liquid, the
at least one conduit member is moved in the opposite direction to the dispensing direction
of the liquid.

65. (Currently Amended) A liquid dispensing method as claimed in claim ~~61~~ 64, wherein at the time that the at least one conduit member moves in the dispensing direction of the liquid and at the time that the at least one conduit member moves in the direction opposite to the dispensing direction of the liquid the acceleration of the at least one conduit member is different in magnitude.

66. (Previously Presented) A liquid dispensing method as claimed in claim 65, wherein an acceleration in the at least one conduit member at the time the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid is larger than an acceleration at time the at least one conduit member is moved in the dispensing direction of the liquid.

67. (Previously Presented) The method of claim 61, further comprising washing the at least one conduit member after the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid.

68. (Previously Presented) The method of claim 61, further comprising washing the at least one conduit member after the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid.

69. (Withdrawn) A liquid pipetting apparatus for dispensing a minute amount of liquid comprising:

at least one conduit member for holding the liquid therein and having a dispensing end; and

an actuator associated with the at least one conduit member, and

means for generating a control signal that drives the actuator in a

dispensing direction, to a temporary stop, and to a direction opposite a dispensing direction of the liquid from the at least one conduit,

wherein the liquid held in the at least one conduit member is dispensed from the dispensing end thereof when the at least one conduit member is temporarily stopped and then moved by the actuator in the direction opposite to the dispensing direction of the liquid by a decrease in the control signal to the actuator.